

# MOTION-BASED TRACKING WITH PAN-TILT-ZOOM CAMERA

## ABSTRACT OF THE DISCLOSURE

5 A motion-estimation scheme is provided that employs a combination of motion  
estimation and compensation techniques. Low resolution images are computed from two  
consecutive image frames, and feature points are determined and matched between the two low  
resolution images. Statistical methods are used to estimate the motion in terms of a translation  
and rotation of the image plane. Corresponding feature points in the original images are  
matched, based on the estimated motion of the low-resolution images. Statistical techniques are  
10 then applied to determine a homography matrix that describes the motion between the  
corresponding feature points in the original images, and this matrix is used to align the original  
images. Differences between the aligned images are identified, to indicate the movement of one  
or more objects in the image.

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